50-498/499 OL S-147 8/13/85

HOUSTON LIGHTING & POWER COMPANY
SOUTH TEXAS PROJECT
PROCEDURE MANUAL

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SUMMARY OF REVISIONS

PROC. No.	TITLE
PSQP-16.3	PROJECT SPECIFIC QUALITY ASSURANCE PROCEDURE
	SUBJECT: TREND ANALYSIS

REVISION NUMBER	REVISION DESCRIPTION
0	Complete rewrite. Changes include addition of coding system, trending of Corporate and Operations deficiency documents, criteria for evaluating BEC and ESI trend results. Format changed to comply with requirements of QAD-5.1. Procedure number changed, replaces former PSQP-A8. Training required. Effectivity date: August 1, 1983
1	Major rewrite. Changes include addition of HL&P trending of BEC and ESI deficiency documents, deletion of QS/A trending of HL&P Operations deficiency documents and change of trend report distribution frequency. Training required (QS/A personnel only). Effectivity date: February 3, 1984
2	Revised to include Project QA Trending of Operations generated deficiencies; expanded list of deficiency documents trended. Added review of TIRs for reportability. Incorporated ICN PSQP-16.3-02. Training required. (QS/A personnel only) Effectivity date: 07-27-84
3	Revised to include description of Trend Program Committee and to incorporate ICN PSQP-16.3-03. No training required. Effectivity date: March 20, 1985

NUCLEAR REGULATORY COMMISSION

Docket No. 50-498-499-OL Official Exh. No. Staff Ex. 147

In the matter of

Staff ✓ IDENTIFIED ✓

Applicant RECEIVED ✓

Intervenor REJECTED

Cont'g Off'r

Contractor DATE 8-13-85

Other Witness

Reporter TATE

REVISION AUTHORIZATION

REVISION NUMBER	0	1	2	3		
DATE ISSUED	08/01/83	01/31/84	07/26/84	03/19/85		
PREPARED BY	J. W. Estella 8-1-83	J. W. Estella 1-30-84	for Kaya 7/20/84	J. W. Estella 3/18/85		
APPROVED BY	N. A. Hallam 8-1-83	J. R. Kuster for J. E. Geiger	D. Jordan 7/27/84	D. Jordan 3/19/85		

Staff
147

1.0 PURPOSE

This procedure provides instructions for the collection, coding and analysis of deficiencies identified by HL&P, BEC and ESI for trends adverse to quality. Instructions for documentation, correction, follow-up and reporting of established/potential trends is also provided.

2.0 SCOPE

This procedure includes the trending of deficiencies identified by the following organizations during the conduct of procurement, design, construction, and start-up activities for the South Texas Project.

A. HL&P Project, Support and Operations QA/QC personnel
B. BEC Site and Design Office personnel
C. ESI QA/QC and Construction personnel

3.0 DEFINITIONS

3.1 Trend - A collection of data, grouped by a common denominator, that exhibits the existence of quality related repetitive deficiencies over time. Repetitive quality related deficiencies include duplication of a significant condition, frequent occurrences of a minor condition or the occurrence of similar deficiencies which may suggest underlying systematic weaknesses. Deficiencies will be trended over a minimum of one year to ensure that those identified during activities audited on an annual basis are reviewed for repetition.

3.2 Reportable Deficiency - A deficiency in design or construction, which, were it to have remained uncorrected, could have adversely affected the safety of operations of the nuclear power plant at anytime throughout the expected lifetime of the plant, and which represents at least one of the following criteria:

(i) A significant breakdown in any portion of the Quality Assurance Program conducted in accordance with the requirements of 10CFR50, Appendix B.

(ii) A significant deficiency in final design as approved and released for construction such that the design does not conform to the criteria and bases stated in the Safety Analysis Report (SAR) or construction permit.

(iii) A significant deficiency in construction of or significant damage to a structure, system, or component which will require extensive evaluation, extensive redesign, or extensive repair to meet the criteria and bases stated in the Safety Analysis Report or construction permit or to otherwise establish the adequacy of the structure, system, or component to perform its intended safety function.

(iv) A significant deviation from performance specifications which will require extensive evaluation, extensive redesign, or extensive repair to establish the adequacy of the structure, system or component to meet the criteria and bases stated in the Safety Analysis Report or construction permit or to otherwise establish the adequacy of the structure system or component to perform its intended safety function.

4.0 REFERENCES

4.1 PSQP-15.2 Stop Work

5.0 RESPONSIBILITY

The Supervisor, Quality Systems/Administration is responsible for maintaining and implementing this procedure.

6.0 REQUIREMENTS

6.1 Documents Trended

6.1.1 The following deficiency documents shall be reviewed by Quality Systems/Administration (QS/A) personnel for potential adverse trends.

a. Standard Deficiency Reports (HL&P, BEC and ESI)
b. Audit Deficiency Reports (HL&P Corporate and Operations)
c. Nonconformance Reports (HL&P Project and Operations, BEC and ESI)
d. Supplier Deviation Disposition Requests (BEC) - accepted only
e. Deficiency Notices (ESI)
f. Audit Finding Reports (BEC)
g. Quality Surveillance Deficiency Report (BEC)
h. Quality Engineering Report (BEC) - Design Deficiency data only.
i. Document Deficiency Notices (BEC)

j. Deficiency Evaluation Form (HL&P)
k. Deficiency Evaluation Report (BEC)
l. Maintenance Discrepancy Reports (BEC, ESI)
m. Corrective Action Reports (HL&P Operation)
n. Surveillance Deficiency Notices (HL&P Operations)

6.1.2 Nonconformance Reports trended will include NCRs documenting HL&P, BEC and ESI deficiencies and NCRs issued by HL&P, BEC and ESI documenting subcontractor and off-site supplier deficiencies. NCRs documenting deficiencies identified on work previously performed and completed by B&R will not be included in the trend analysis program.

6.2 Coding

6.2.1 Upon initiation/validation, copies of HL&P Project and Operation NCRs and Operations CARs and SDNs will be forwarded to QS/A. QS/A will retain a copy of HL&P initiated SDRs upon transmittal to the responsible organization. Copies of Corporate and Operations ADRs will be forwarded to QS/A upon transmittal of the applicable audit report. Copies of DEFs will be forwarded to QS/A by Project Licensing. Copies of deficiency documents generated by BEC and ESI will also be forwarded to HL&P QS/A upon initiation/validation in accordance with the controlling procedure.

6.2.2 Upon receipt by HL&P QS/A, a code providing the following information will be entered into the computer data base:

6.2.2.1 Company
Organization
Discipline/Group
- A description of who was responsible for performing the activity which generated the deficiency. Examples of one character 'Company' codes are provided on Attachment 2. Examples of two character 'Organization' and 'Discipline/Group' codes are provided on Attachments 3 and 4. respectively.

6.2.2.2 Activity - The activity which generated the deficiency. Examples of two character codes are provided on Attachment 5.

6.2.2.3 Deficiency Type - A description of what was wrong with the deficient item. Examples of two character codes are provided in Attachment 6.

The trend codes provided on attachments 2 through 6 are examples only. The trend code list will be controlled separately from this procedure. Updates will be made as necessary and the revised code list will be approved by the PQAM prior to use in trend analysis.

6.2.3 The code will be entered into the computer data base in the following format (Reference Attachment 1):

Company - Organization - Discipline/Group - Activity - Deficiency Type

Example: CAR G-052 The BEC PQPM, Rev. 1 was issued without HL&P review and approval.

Company (Attach. 2)	Organization (Attach. 3)	Discipline/Group (Attach. 4)	Activity (Attach. 5)	Deficiency Type (Attach. 6)
2	07	N/A	39	40

If multiple items are identified on the deficiency document, two or more codes may be used to ensure adequate retrieval and comparison capabilities. Multiple codes may also be used for deficiency documents identifying single items if one code in any or all categories does not adequately describe the condition.

Example: CAR G-085 1. Records are not stored according to ANSI requirements and access requirements are not enforced.

2. Procedures are not developed describing filing methods.

Company	Organization	Discipline/Group	Activity	Deficiency Type
2	09	N/A	61	32 30 07

The code of "other" should be used only when no other code in a particular category applies.

6.2.4 The trend codes and other pertinent information related to each deficiency document, i.e., document number, description, issue date, etc., will be entered into the HL&P Trend Analysis computer program.

6.3 Analysis

6.3.1 The analysis of deficiency documents is segregated into four groups.

6.3.1.1 Hardware Deficiencies: Those deficiencies concerning actual hardware problems involving Project and Operations Activities. The deficiency documents falling into this category include HL&P, BEC and ESI NCRs and ESI DNs.

6.3.1.2 System Deficiencies: Those deficiencies involving programmatic and non-hardware problems occurring during Project and Operations activities. Deficiency documents trended include HL&P, BEC and ESI SDRs; HL&P Corporate ADRs; HL&P DEFs; BEC DERs; HL&P Operations ADRs and SDNs; and BEC and ESI MDs.

6.3.1.3 Supplier Deficiencies: Those deficiencies issued against supplier activities. The deficiency documents trended in this category include BEC SDDRs; BEC AFRs; BEC DDNs; BEC QSDRs; and HL&P, BEC and ESI NCRs issued against suppliers.

6.3.1.4 Engineering Design Changes: Those deficiencies not identified by BEC Engineering in the course of design development that ultimately result in a design change document to achieve a satisfactory design. The coded, sorted data is submitted to HL&P QS/A by BEC Engineering via the Quality Engineering Report for analysis. Design change documents trended include Drawing Change Notices, Specification Change Notices, Field Change Requests, Specification Revisions and Drawing Revisions.

6.3.2 Each month the deficiency documents in the categories described above will be sorted by one or any combination of code categories as deemed appropriate for the current reporting period and the previous eleven months. The data will be normalized against indices deemed appropriate for the activity or commodity, i.e., manhours, quantity installed, inspection hours. Graphical summaries of the performance for selected code categories over time will be prepared in each area.

6.3.3 A preliminary evaluation of the graphical data will be made in a joint meeting held by HL&P and BEC QA. Those areas in which immediate corrective action or further review is felt necessary will be extracted. No further action will be taken in those areas where no potential trends appear to be developing.

6.3.4 Those areas where further review is felt warranted will be referred to the Trend Program Committee. The Trend Program Committee is composed of HL&P and BEC personnel representing QA and Construction supplemented by additional discipline personnel when further expertise in an area under evaluation is necessary. The Trend Program Committee will review each area to determine whether sufficient evidence is available to indicate that a trend adverse to quality is developing or has developed. An action plan will be drafted by the committee for those areas where a trend has developed or may be developing and a TIR will be issued by QS/A in accordance with paragraph 6.4.

6.4 Trend Documentation

6.4.1 A TIR will be issued by QS/A to BEC or ESI via the BEC PQAM, or appropriate HL&P or vendor management personnel responsible for the specific deficiency(s) when deemed necessary by the Trend Program Committee. The information contained in Section 1 of the TIR will be documented by the initiator. This will include an evaluation for reportability in accordance with 10CFR50.55(e) utilizing the guidelines contained in definition 3.2. If the TIR appears to be reportable per 10CFR50.55(e), a Deficiency Evaluation Form (DEF) will be initiated in accordance with PLP-02. The Supervisor, QS/A will review and approve the TIR prior to issuance.

After approval, QS/A will assign a sequential number to and log the TIR. The TIR will be issued to the responsible party via a cover letter prepared by QS/A and signed by the Project QA Manager (PQAM). A response date of no more than 20 working days from the date on the cover letter will be assigned. Written response extension requests may be granted by the PQAM if good cause has been demonstrated.

6.4.2 The responsible party will conduct an investigation to determine whether a trend exists and document the results in Section 2 of the TIR. If no trend was identified, the TIR will be signed and returned to QS/A. If a trend was identified, Section 3 will be completed, the TIR will be signed and returned to QS/A.

6.4.3 The initiator will review the investigation results for adequacy and verify implementation of corrective action/recurrence control, if applicable. The results will be documented in Section 4 of the TIR.

6.4.4 The TIR will be signed by the initiator and approved by the Supervisor, QS/A upon satisfactory verification of the corrective action/recurrence control. The TIR will be forwarded to the HL&P Project QA Manager (PQAM) for final closure approval. If no trend was identified, the TIR will be closed after a review for adequacy of the investigation results.

6.4.5 A letter, prepared by QS/A and signed by the HL&P PQAM, will be sent to the responsible organization notifying them of closure of the TIR. If the TIR involved offsite suppliers, as described in paragraph 6.5.2, the closure letter will be prepared by QS/A and signed by the Manager, QA.

6.4.6 Unsatisfactory responses, evidence that an inadequate investigation was conducted by the responsible organization to determine whether a trend exists, or failure to implement corrective action/recurrence control shall be handled at the discretion of the Supervisor, QS/A and may be directed to a higher level of management.

6.4.7 TIRs will be monitored on a quarterly basis for recurrence. Repetition of a previously identified and confirmed trend may be handled in accordance with PSQP-15.2 or directed to an appropriate level of management for resolution.

6.5 Operations and Corporate TIRs

6.5.1 Potential trends identified as a result of a review of Operations NCRs, CARs, ADRs and SDNs involving onsite organizations will be documented on a TIR by QS/A and forwarded to the responsible organization via a cover letter signed by the Operations QA Manager. Review of investigation results, implementation verification and closure will be handled by Operations QA personnel in accordance with paragraphs 6.4.3 and 6.4.4. Responsibilities assigned in these paragraphs to the initiator, Supervisor QS/A, and PQAM will be performed by Operations QA Specialists/Engineers, the Supervisor Operations QA and the Operations QA Manager, respectively. After closure, the original TIR will be forwarded to QS/A for filing.

6.5.2 Potential trends identified as a result of a review of Corporate and Operations ADRs issued to offsite suppliers will be documented on a TIR by QS/A and issued to the appropriate subcontractor management personnel via a cover letter signed by the Manager, QA. Review of investigation results and implementation verification of TIRs involving Corporate ADRs will be handled by QS/A with assistance from Corporate QA personnel as requested by the Supervisor, QS/A. Closure of the TIR will be in accordance with paragraph 6.4.4.

Review of investigation results, implementation verification and closure of TIRs involving Operations ADRs will be handled by Operations personnel as described in paragraph 6.5.1.

6.5.3 TIRs involving a combination of Project, Operations and/or Corporate deficiency documents will be handled by QS/A personnel in accordance with paragraphs 6.4.1 through 6.4.5.

6.6 Reporting

6.6.1 A summary of trends identified in the current reporting period and actions taken on open, previously identified trends will be included in the QA Monthly Report. A formal Trend Report will be prepared by QS/A and issued on a quarterly basis. Distribution will include at a minimum:

a) HL&P Group Vice President, Nuclear
b) HL&P Manager, Quality Assurance
c) HL&P Project QA Manager
d) HL&P Operations QA Manager
e) HL&P Support QA Manager
f) BEC Project QA Manager
g) ESI Quality Program Site Manager

7.0 DOCUMENTATION

The following documents are considered Quality Assurance records and shall be transmitted to STP RMS by the Supervisor, Quality Systems/Administration.

7.1 Records

7.1.1 Quarterly Trend Analysis Reports

7.1.2 Trend Investigation Requests (TIR) and related documentation

7.2 Working Documents

7.2.1 None

7.3 Attachments

7.3.1 Attachment 1 - Code Format

7.3.2 Attachment 2 - Company Codes

7.3.3 Attachment 3 - Organization Codes

7.3.4 Attachment 4 - Discipline/Group Codes

7.3.5 Attachment 5 - Activity Codes

7.3.6 Attachment 6 - Deficiency Type Codes

7.3.7 Attachment 7 - Trend Investigation Request (TIR)

ATTACHMENT 1
CODE FORMAT

A B C D E

A. Company: Company responsible for the deficiency.

B. Organization: Organization within the company responsible for the deficiency.

C. Discipline/Group: Discipline within the organization. More than one may be be used, i.e., QC-Site-Electrical. This code is optional.

D. Activity: Activity which generated the deficiency.

E. Deficiency Type: A brief description of what the deficiency was.

ATTACHMENT 2
COMPANY

1. Houston Lighting and Power
2. Bechtel
3. Ebasco
4. Westinghouse
5. B&R
6. Vendor

ATTACHMENT 3
ORGANIZATION

01 Construction
02 Engineering
03 Licensing
04 Procurement
05 Project Management
06 Project Administration
07 QA
08 QC
09 RMS
10 Startup
11 PSQD
12 Nuclear Fuels
13 Operations
14 Project Services
15 Contracts
16 Field Engineering
17 Nuclear Fuels Division (W NFD)
18 Electro Mechanical Division (W EMD)
19 Nuclear Services Division (W NSD)
20 Water Reactor Division (W WRD)
21. Special Metal Division (W SMD)
22. Other
23 Material Control
24 Warehousing
25 Management Services
26 Chemical Operations & Analysis
27 Maintenance
28 Reactor Operations
29 Technical Support
30 Health and Safety
31 Stores
32 Nuclear Purchasing

ATTACHMENT 4
DISCIPLINE/AREA

01 Electrical

02 Civil

03 Mechanical

04 Site

05 Design Office

06 Corporate

07 Systems

08 Nuclear

09 Plant Design

10 Pipe Stress and Support Group (PSSG)

11 Welding

12 HVAC

13 Other

14 Piping

15 Pipe Supports

16 Instrumentation

17 Chemical Operations

18 Chemical Analysis

19 Reactor Operations

20 Maintenance Support

ATTACHMENT 5
ACTIVITY

01	Concrete	23	Instrumentation
02	Rebar	24	NSSS
03	Structural Steel	25	HVAC
04	Embeds	26	Receiving
05	Coatings	27	Calibration
06	Expansion Anchors	28	Storage and Maintenance
07	Grouting	29	Housekeeping
08	Cadwelding	30	Rigging
09	Soils	31	Audits
10	Anchor Bolts	32	Surveillances
11	Electrical Equipment	33	Trending
12	Electrical Terminations	34	Penetrations
13	Electrical Conduit	35	Shipping
14	Electrical Cable Trays	36	Manufacturing/Fabrication
15	Electrical Cable Pull	37	Document Control
16	Electrical Cable	38	Design Review
17	Code Stamping	39	Procedure Review
18	Piping	40	Training/Certification
19	Welding	41	Inspection
20	NDE	42	Effectiveness Inspections
21	Supports	43	Geotechnical Monitoring
22	Mechanical Equipment	44	Procedure Control

ATTACHMENT 5 (Cont.)
ACTIVITY

45	Nonconformance Control	59	Corrective Action
46	Fire Protection	60	Temporary Attachments
47	Design Document Control	61	Records Control
48	Records Review	62	Other
49	Seismic	63	Calculations
50	Installation/Erection	64	QSDRs
51	Procurement Document Control	65	AFRs
52	Evaluation/Selection of Suppliers	66	Maintenance
53	Supplier Control	67	Start-up Testing: Electrical
54	SDDRs	68	Start-up Testing: Mechanical
55	Organization/Responsibility	69	Start-up Testing: I&C
56	Control of Purchased Material/Equipment/Services	70	Inservice Inspection
57	Material Control	71	Emergency Plan
58	Testing	72	Radwaste

ATTACHMENT 6
DEFICIENCY TYPE

01	Preplacement	23	Codes and Standards
02	Placement	24	Specification
03	Postplacement	25	Incorrect Quantity
04	Damage	26	Identification
05	Documentation	27	Frequency
06	Test out of spec	28	Manufacturers Requirements
07	Procedural	29	Zone Violation
08	Mislocated	30	Access Control
09	Missing	31	Traceability
10	Alignment	32	Improper Storage
11	Bolt up	33	Tagging
12	Weld defects	34	Segregation
13	Surface Preparation	35	Qualifications
14	Application	36	Unauthorized Release
15	Post application	37	Drawing
16	Testing	38	Incorporation
17	Splice preparation	39	Improper Inspection
18	Hold points missed	40	Improper Review/Approval
19	Configuration	41	Training
20	Instrument Set Points	42	Improper process
21	Mechanical Set Points	43	Improper rigging
22	QA Program	44	Handling

ATTACHMENT 6 (Cont.)
DEFICIENCY TYPE

45 Timeliness

46 Drafting Deficiency

47 Quality Surveillance Plan Violation

48 Design Error

49 Improper Audit

50 Improper Specification of Quality Requirement

51 Other

52 Material Acceptance

53 Material Change

54 Technical Change

55 Corrective Action Acceptance

56 Cleanliness

57 Incorrect/Inadequate Distribution

58 Incorrect/Inadequate Status

59 Dimensions out of Tolerance

60 Fabrication Errors

61 Minimum Wall Violations

62 Base Material Defects

63 Fabrication/Installation without approved documents

64 Interference

65 Corrosion

66 Improper Maintenance

67 Contamination

68 Tech Spec Violation

ATTACHMENT 7

TREND INVESTIGATION REQUEST

HOUSTON LIGHTING & POWER
SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION
TREND INVESTIGATION REQUEST TIR NO.

DATE ISSUED	DATE DUE	RESPONSIBLE PARTY	DEF REQUIRED ☐ YES ☐ NO

1 SUSPECT TREND AREA

INITIATOR	DATE	SUPERVISOR APPROVAL	DATE

ADVERSE TREND IDENTIFIED YES ☐ NO ☐ IF YES COMPLETE SECTIONS 2 AND 3. IF NO COMPLETE SECTION 2 ONLY.

2 INVESTIGATION RESULTS

SIGNATURE	DATE

3 ROOT CAUSE

CORRECTIVE ACTION

RECURRENCE CONTROL

SIGNATURE	DATE	EFFECTIVITY DATE

RESPONSE ACCEPTED YES ☐ NO ☐ INITIATOR DATE

4 VERIFICATION RESULTS

INITIATOR CLOSURE	DATE	SUPERVISOR APPROVAL	DATE

PQAM/QAM CLOSURE DATE

PQA 041 07 84